

Dark Energy and Dark Matter¹

The standard model explains the matter we see, but the universe also has *dark matter* whose gravitational effects bind galaxies. There is five times more of it than ordinary matter, so the standard model needs more particles, but the search for WIMPs², as for gravitons and squarks, has been fruitless, despite talk of [super-WIMPs](#). And 70% of the universe is *dark energy* the standard model can't explain either, so even with the Higgs, a standard model that explains less than 5% of the universe isn't even close to being a theory of everything.

Dark energy is a sort of negative gravity that pushes things apart, to accelerate the expansion of the universe. This weak effect, spread evenly through space, hasn't changed much over time. In equations, it makes space flat, so some see it as a property of space itself. Yet a property of space should increase as space expands, and if it was something floating in an expanding space, it should weaken over time. Currently, no-one has any idea what it is.

In quantum realism, our space is the inner surface of an expanding hyper-bubble that *continuously adds new space*. New space points receive processing but don't pass any on, so for one cycle they absorb but don't emit, giving the weak negative energy spread through the universe we call dark energy. If new space adds at an approximately constant rate the effect will be approximately constant over time. Dark energy is then a result of the ongoing creation of space.

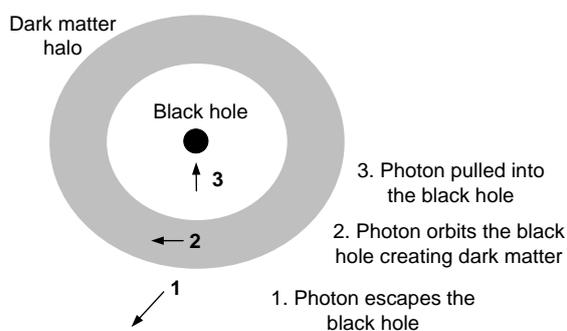


Figure 4. Dark matter as photons in orbit

Dark matter presents as a halo around the black hole at the center of every galaxy that acts to hold the stars together more tightly than their gravity allows. It isn't the matter we see, as no light can detect it, it isn't anti-matter as it has no gamma ray signature and it isn't a black hole as there is no gravitational lensing, but without it the stars of our galaxy would fly apart. The [MoND](#) answer modifies Newton's law of gravity³, but quantum realism invokes the pass-it-on protocol that nodes can receive program interrupts since they *first* pass on their current processing. This avoids an infinite

pass-it-on problem, as any asynchrony is sooner or later absorbed by a new point of space. But when light orbits in a finite circle around a massive black hole at a galaxy center, new space doesn't add fast enough to absorb the grid asynchrony, giving a permanent processing excess, i.e. matter (Figure). If light trapped in a node can be ordinary matter, light trapped in an endless cycle round a black hole can be dark matter. It presents as a halo because light too close to the black hole is pulled in so it can't circle, and light too far from it can escape. Dark matter arises from light as ordinary matter does, except it is light trapped in a circle, not in a repeating reboot.

The expansion of space means our physical universe isn't complete. It is either pushing out into something or being pulled out by something. Either way, as the universe expands light cools down, so energy as a whole isn't conserved. An expanding universe doesn't conserve energy over time.

¹ This is section 4.7.6 from Chapter 4 [The Matter Glitch: An Alternative to the Standard Model](#), of the forthcoming book Quantum Realism by Brian Whitworth. The link gives a free early access to the whole chapter. This work is ©Brian Whitworth 2014 but shared under a [Creative Commons Attribution-Noncommercial license](#).

² WIMPs are Weakly Interacting Massive Particles.

³ MoND stands for Modified Newtonian Dynamics, see [here](#).